



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

Early spring aspects of the coastal plain vegetation of South Carolina, Georgia, and northeastern Florida

ROLAND M. HARPER

The first week in March, 1910, I journeyed from Washington, D. C., to Jacksonville, Fla., on a through train of the Southern Railway, traversing the Piedmont region from Washington to a few miles north of Columbia, S. C., and the coastal plain the rest of the way. That part of the route lying in the Piedmont region has been in operation, and the region as a whole has been fairly thickly settled, so long that the opportunities for studying natural vegetation from the train along there are now rather limited. But in the coastal plain portion civilization has not yet made such serious inroads. That part of the railroad in South Carolina between Columbia and Perry, 32 miles, and Allendale and Hardeeville, 51 miles, is only about a dozen years old, having been built by the Southern Railway in the last few years of the nineteenth century in order to gain an entrance into Savannah. From Hardeeville to Jacksonville the tracks of the Atlantic Coast Line are used, and of this the part between Jesup and Folkston, Georgia, 54 miles, was built by the Plant System, shortly before its absorption by the Atlantic Coast Line in 1902, to shorten its mileage between Savannah and Jacksonville by about 20 miles. Even along the older parts of the railroads in the coastal plain, such as that between Savannah and Jesup, which has been in operation for half a century, there is still a much larger proportion of the original forest to be seen than in the Piedmont region.

The schedules of the only through train on that route at the time indicated were most convenient for my purposes. Most of the Piedmont region, where what little remains of the vegetation had hardly awakened from its winter sleep (spring having been a little late in the South in 1910), was traversed at night, while in the coastal plain portion of the route, where the vegetation was more advanced, phenologically speaking—mainly on account of the lower latitude and altitude—and there is more for a botanist

to see even in winter, I had daylight all the way. It happens also that I had been over all the Piedmont portion of this route, between Washington and Columbia, by daylight in former years; while south of Columbia it was all new to me except three sections in Georgia, namely, from the Savannah River to Jesup, 74 miles, Hortense to Nahunta, 9 miles, and Folkston to the St. Mary's River, 3 miles. From Columbia to Savannah, however, I was nowhere more than 12 miles from the Seaboard Air Line, on which I had traveled northward a little more than seven months previously.*

The train I was on made about 45 miles an hour, including regular stops (which were few); and at that speed I could not identify many herbs, especially so early in the season. However, some observations of more than passing interest were made on the woody plants, some of which are rapidly becoming scarcer along the route to be described, owing to the "pernicious activity" of lumbermen and farmers.

At daybreak on the fourth of March I was just passing Blythewood, S. C., which is about 20 miles north of Columbia and at the inland edge of the fall-line sandhills, whose summer vegetation I described superficially last year.† These sandhills continued all the way across Richland and Lexington counties, and to the vicinity of Perry in Aiken County, 32 miles south of Columbia. In this region the lumbering of long-leaf pine seems to have practically ceased, and the turpentine industry (which is based on the same tree) nearly so. Agriculture has not quite kept pace with the destruction of the pines, and the region is still very sparsely settled, except in the immediate vicinity of Columbia and other fall-line cities. The highest and barrenest portions of the sandhills, on this route at least, seemed to be about 15 miles south of the Saluda River, or approximately halfway between Columbia and Perry.

The following plants were observed more than once in passing through the sandhill country.‡

*See Bull. Torrey Club 37: 407, 592. 1910-11. My 1910 route crossed that of 1909 at an unnamed point about two-thirds of the way from Columbia to Savannah.

† Bull. Torrey Club 37: 412, 413. 1910.

‡ In this and the subsequent lists evergreens are indicated by bold-faced type, which will aid the reader in picturing to himself how they stand out conspicuously

TREES	SHRUBS
20 Pinus palustris	6 Phoradendron flavescens
16 <i>Quercus Catesbaei</i>	4 Smilax laurifolia
7 <i>Nyssa biflora</i>	3 Arundinaria tecta
6 Pinus Taeda	3 Ceratiola ericoides
5 Pinus serotina	
4 Pinus echinata	HERBS
2 <i>Liriodendron Tulipifera</i>	4 <i>Kuhnistera pinnata</i>
2 Magnolia glauca	3 <i>Andropogon virginicus</i>
2 <i>Acer rubrum</i>	3 Lupinus diffusus
2 Chamaecyparis thyoides	

The relatively higher rank of most of the evergreens in this list, as compared with the same species in the corresponding list in my previous paper, is of course due mostly to the pre-vernal leaflessness of the deciduous trees. The two non-evergreen herbs mentioned have stiff erect stems which are just about as conspicuous in winter as in summer.

From about Perry to Allendale, 46 miles, I was in the "middle country" or "upper pine belt" (previously described*), which is somewhat less hilly and less sandy than the sandhills, and mostly under cultivation, as I have stated elsewhere. The following plants were noted as characteristic. (The names of introduced species are in parentheses.)

TREES	SHRUBS
18 Pinus Taeda	5 Phoradendron flavescens
17 Pinus palustris	5 Smilax laurifolia
10 <i>Taxodium imbricarium</i>	5 Arundinaria tecta
7 <i>Acer rubrum</i>	5 (<i>Prunus angustifolia</i>) †
6 <i>Quercus Catesbaei</i>	
6 <i>Nyssa biflora</i>	HERBS
4 Magnolia glauca	4 Tillandsia usneoides
3 <i>Quercus marylandica</i>	2 (<i>Isopappus divaricatus</i>)
2 <i>Liquidambar Styraciflua</i>	2 <i>Erianthus</i> sp. (in shallow ponds)
2 (<i>Melia Azederach</i>)	
2 Quercus nigra	

The pine barrens may be said to begin with the appearance of in the winter landscape. The figures here have the same significance as in my 1910 paper above referred to.

*L. c. 411-412.

† This was the only deciduous shrub identified from the train that day. It happened to be in bloom at the time; otherwise I might have not noticed it quite so often.

Pinus Elliottii, near Allendale. The transition from the undulating farming region, just described, to the more typical flat damp pine barrens dotted with shallow ponds is very gradual, however, and the exact boundary cannot be located at present within several miles. A brief description of this kind of country, based on observations made mostly in the same county (Hampton) in 1906 and 1909, has already been published.* Although the railroad between Allendale and Hardeeville is only about a dozen years old, as stated above, the lumbermen have already cut nearly every pine tree within sight of it, that was worth taking. Many of the logs however were doubtless hauled to other railroads near by, or to the Savannah River, before this railroad was built. A pretty good description of the southern part of the region now under consideration can be found in Bulletin 43 of the U. S. Bureau of Forestry, entitled "A working plan for forest lands in Hampton and Beaufort counties, South Carolina," by Thomas H. Sherrard, published in 1903.

The following plants were noted in the 51 miles of pine barrens traversed in South Carolina.

TREES	SHRUBS
24 <i>Pinus Taeda</i>	9 <i>Smilax laurifolia</i>
22 <i>Pinus Elliottii</i>	9 <i>Ilex glabra</i>
18 <i>Pinus palustris</i>	7 <i>Myrica cerifera</i>
14 <i>Taxodium imbricarium</i>	6 <i>Phoradendron flavescens</i>
10 <i>Nyssa biflora</i> †	5 <i>Ilex myrtifolia</i>
10 <i>Acer rubrum</i>	2 <i>Arundinaria tecta</i>
7 <i>Pinus serotina</i>	
7 <i>Pinus echinata</i>	HERBS
6 <i>Quercus nigra</i>	16 <i>Tillandsia usneoides</i>
3 <i>Magnolia glauca</i>	3 <i>Trilisa odoratissima</i> ?
2 <i>Magnolia grandiflora</i>	3 <i>Carex Walteriana</i> ?
	2 <i>Erianthus</i> sp. (in ponds)

The occurrence in this list of several woody plants of climax tendencies, such as *Pinus Taeda*, *P. echinata*, *Quercus nigra*, *Magnolia grandiflora*, and *Myrica cerifera*, is probably to be explained by the proximity of the Savannah River bottoms in the

*L. c. 409, 410.

† In Mr. Sherrard's report on this region the black gum is referred, probably erroneously, to *Nyssa sylvatica*. See in this connection Bull. Torrey Club 34: 352. 1907 (fifth footnote).

last few miles. *Quercus Catesbaei* was not seen at all between Allendale and Savannah, probably because the country is not quite high and dry enough for it. It is interesting to note that this list contains five of the six pines which are indigenous to the coastal plain of the Carolinas and Georgia; and the other one, *P. glabra*, was seen in the same region too, but only once. *Pinus palustris* was doubtless originally far more abundant than any other tree in this region.

A mile or so southwest of Hardeeville the railroad enters the bottoms and swamps of the Savannah River, which are here about three miles wide on the South Carolina side and perhaps a little narrower on the Georgia side. Some notes on the swamp timber northwest of Hardeeville (nearer to Purysburg, a place mentioned a few times in Elliott's Botany of South Carolina and Georgia) can be found in the paper by Sherrard, above mentioned.

The following plants were noted more than once in the first seven or eight miles after leaving Hardeeville.

TREES	SHRUBS
6 <i>Acer rubrum</i>	4 <i>Sabal glabra</i>
5 <i>Pinus Taeda</i>	3 <i>Phoradendron flavescens</i>
4 <i>Taxodium distichum</i>	3 <i>Arundinaria macrosperma</i>
4 <i>Nyssa uniflora</i>	2 <i>Myrica cerifera</i>
4 <i>Liquidambar Styraciflua</i>	
4 <i>Quercus nigra</i>	HERBS
3 <i>Pinus echinata</i>	8 <i>Tillandsia usneoides</i>
2 <i>Ulmus</i> sp.	7 <i>Zizania aquatica</i>
2 <i>Magnolia grandiflora</i>	
2 <i>Salix nigra</i> ?	

From the river to Savannah and thence southwestward to within a mile and a half of Walthourville, a total distance of about 53 miles, the railroad is mostly in what might be called the coast region of Georgia, though farther inland than the salt marshes and live oak hammocks, which are characteristic of the region. Along the railroad the country is very level, the soil is rather silty, or perhaps marly in a few places, and the vegetation is much nearer the climax condition than it is in the pine barrens a little farther inland. A few estuaries which were crossed bring to view a number of marsh plants, only a few of which were seen more than once, however.

A large part of the coast region has been under cultivation ever since the colony of Georgia was founded, about 175 years ago, and most of the inhabitants are negroes, as is the case in many other parts of the South where agriculture has long been the leading industry. This region corresponds in part to the "savannas" and "live oak bottoms" described by Dr. R. H. Loughridge in his report on the cotton production of Georgia.*

The coastward edge of the pine barrens is rather vaguely defined, and probably irregular as well, and in these 53 miles quite a number of pine-barren plants were seen, which probably indicate tongues or projections of the pine-barren region extending a short distance across the railroad.

It happens that on July 17, 1909, I came into Savannah from the southwest, the last 57 miles being on the same route here described, and then turned westward, passing out of the coast region near Meldrim, about 18 miles from Savannah. In order to compare the summer and winter aspects of the vegetation along what is for the most part the same route, I will here place in parallel columns the results of the two trips, the first from Walthourville to Savannah and Meldrim, 56 miles, and the second from the Savannah River to Savannah and near Walthourville, 53 miles.

<i>July</i>	<i>March</i>
TREES	TREES
33 Pinus Taeda	29 Pinus Taeda
24 Liquidambar Styraciflua	20 Acer rubrum
23 Nyssa biflora	15 Nyssa biflora
20 Pinus serotina	15 Pinus serotina
12 Taxodium imbricarium	12 Pinus palustris
11 Pinus Elliottii	8 Pinus Elliottii
6 Pinus palustris	8 Magnolia glauca
6 Acer rubrum	7 Quercus nigra
4 Taxodium distichum	6 Magnolia grandiflora
3 Nyssa uniflora	5 Liquidambar Styraciflua
2 Nyssa Ogeche	4 Taxodium imbricarium

*Tenth Census U. S. 6: 317, 318, 423, 424. 1884. Also in Henderson's Commonwealth of Georgia, 114-116. 1885. Later descriptions of the same region can be found in Ann. N. Y. Acad. Sci. 17: 20. 1906; and in the preliminary reports on the soils in the vicinity of Savannah and Brunswick by J. A. Bonsteel and H. H. Bennett, respectively (circulars 19 and 21 of the U. S. Bureau of Soils, July, 1909, and February, 1910).

2 *Pinus echinata*2 *Quercus Phellos*

SHRUBS

5 *Serenoa serrulata*4 *Phoradendron flavescens*3 (*Baccharis halimifolia*)3 *Myrica cerifera*2 *Clethra alnifolia*

HERBS

23 *Tillandsia usneoides*8 *Eupatorium rotundifolium*6 *Eriocaulon decangulare*5 *Pluchea bifrons*4 *Pontederia cordata*3 *Osmunda cinnamomea*3 *Scirpus Eriophorum*3 *Jussiaea grandiflora*2 *Zizania aquatica*2 *Juncus Roemerianus*

etc.

4 *Quercus falcata*4 *Taxodium distichum*3 *Nyssa uniflora*3 *Pinus echinata*2 *Quercus virginiana*2 *Juniperus barbadensis?*

(on borders of marshes)

SHRUBS

20 *Myrica cerifera*12 *Phoradendron flavescens*8 *Sabal glabra*6 *Serenoa serrulata*5 (*Baccharis halimifolia*)4 *Ilex glabra*2 *Smilax lanceolata*

HERBS

28 *Tillandsia usneoides*5 *Juncus Roemerianus*4 *Zizania aquatica*3 *Orontium aquaticum*

It will be noticed that the five pines, also *Taxodium distichum*, *Nyssa uniflora*, *Phoradendron*, *Baccharis*, and *Tillandsia*, occupy the same relative rank, or nearly so, in both lists. *Acer rubrum* and *Liquidambar* just about interchange places, doubtless because in March the former was in fruit, and therefore conspicuous and unmistakable, while the latter is not so readily identified when its characteristic leaves are off, especially in young trees which bear no fruit. *Magnolia glauca*, *M. grandiflora*, and *Myrica cerifera*, which stand higher in the March list, are evergreen, and *Quercus nigra* nearly so in that latitude.

From Walthourville to Jesup, Folkston, and Jacksonville, a distance of about 118 miles, my route was through flat pine barrens, averaging perhaps 50 feet above sea level, dotted with numerous very shallow depressions with no outlets, and traversed by sluggish streams, most of them mere branches, with their channels only a few inches or feet below the general level, and bordered by comparatively wide swamps. This region corresponds approximately with Loughridge's "pine and palmetto flats"* in Georgia, and

* Tenth Census U. S. 6: 316, 317, 415, 421. 1884. See also Ann. N. Y. Acad. Sci. 17: 19, 20. 1906; Southern Woodlands 1³: 20-23. 1907 (where I treated it as a subdivision of the Altamaha Grit region); and Pop. Sci. Monthly 74: 601, 602. 1909.

with the flatwoods of northeastern Florida, described at the same time by Dr. E. A. Smith.*

In Nassau County, Florida, about 30 miles out from Jacksonville, the railroad crosses obliquely a low sandy ridge which seems to extend parallel to the coast for over 100 miles in Georgia and Florida.† About the only noticeable difference in the country east and west of this ridge is that east of it many of the creeks seem to have cut down through the sand and clay of the pine barrens into marl beds, as indicated by the presence of supposedly calciphile plants like *Taxodium distichum*, *Juniperus*, *Sabal*, *Cladium*, etc., in their swamps.‡

In these flat pine barrens lumbering is a very simple operation, and the lumbermen have already done their worst. Along the route here described the day of the big sawmill§ is past, and small ones and turpentine stills are becoming scarce. The greater part of this destruction of forests was probably accomplished in the decade immediately preceding the building of the short line from Jesup to Folkston. Long-leaf pines are still everywhere in sight, but only small or defective specimens. The farmer is following slowly after the lumberman, and will probably in time obliterate nearly all distinctions between this region and the adjoining ones, except the topography.

Although many plants have been collected in the neighborhood

* Tenth Census U. S. 6: 202, 203, 231, 232. 1884. The latest descriptions of this part of Florida are in the Third Annual Report of the Florida State Geological Survey (January, 1911), pages 92, 96, 97, 126, 135, 136, 224, 225.

† For notes on this ridge in geographical literature see Loughridge, Tenth Census U. S. 6: 315, 316 (last paragraph), 317, 421, 423, 424. 1884; McCallie, Geol. Surv. Ga. Bull. 8: 96 (line 26). 1902; Sellards & Gunter, Ann. Rep. Fla. Geol. Surv. 3: 126, 136. 1911. Also Pop. Sci. Monthly 74: 603 (near bottom), 605. 1909; Ann. Rep. Fla. Geol. Surv. 3: 225. *pl. 16*. 1911. It was called a terrace by Loughridge, and a dune by McCallie.

‡ See Bull. Torrey Club 32: 158, 459. 1905. One of the calcareous swamps between Folkston and Jacksonville, which I first observed from the train on March 4th and examined at leisure the latter part of May, contributed largely to the habitat list on pages 241 and 242 of the Florida report just cited.

§ In the long-leaf pine region a pretty sharp distinction can be made between big and little sawmills, the former being built to stay several years, and being provided with a waste burner or slab pit, a contrivance by which the slabs wasted in sawing are conveyed up a long incline and dropped into a fire which burns day and night. The small mills are more temporary affairs, and lack this conspicuous appendage.

of Jesup, Folkston, and especially Jacksonville, the vegetation of the flat pine barrens has apparently never been described except in the most vague and general terms, as it might be by a person with no knowledge of botany whatever. And Nassau County, Florida, through which I passed for 23 miles, has scarcely been visited by collectors or mentioned in botanical literature.

The following list will give the reader a pretty good idea of the prevailing trees and evergreen shrubs of the region under consideration, but of course only a very small fraction of the herbs.

TREES	SMALL TREES OR LARGE SHRUBS
72 <i>Pinus Elliottii</i>	21 <i>Cliftonia monophylla</i>
63 <i>Pinus palustris</i>	21 <i>Ilex myrtifolia</i>
59 <i>Taxodium imbricarium</i>	5 <i>Nyssa Ogeche</i>
28 <i>Pinus serotina</i>	
20 <i>Magnolia glauca</i>	SHRUBS
19 <i>Acer rubrum</i>	68 <i>Serenoa serrulata</i>
11 <i>Nyssa biflora</i>	29 <i>Ilex glabra</i>
8 <i>Quercus Catesbaei</i>	20 <i>Smilax laurifolia</i>
7 <i>Pinus Taeda</i>	5 <i>Phoradendron flavescens</i>
4 <i>Taxodium distichum</i>	4 <i>Sabal glabra</i>
4 <i>Quercus nigra</i>	2 <i>Pieris nitida</i>
2 <i>Juniperus virginiana?</i>	
2 <i>Magnolia grandiflora</i>	
HERBS	
20 <i>Tillandsia usneoides</i>	2 <i>Andropogon virginicus</i>
3 <i>Aristida stricta</i>	2 <i>Cladium effusum</i>

Besides the branch, creek, and river swamps common to most flat pine-barren regions there are two other palustrine types of vegetation, characterized by shallow stagnant water; namely, cypress ponds, with *Taxodium imbricarium* and *Pinus Elliottii* the dominant trees, and a lower story of *Ilex myrtifolia* and often *Nyssa biflora*; and bays (somewhat resembling the pocosins of eastern North Carolina), with *Pinus serotina* or sometimes *P. Elliottii* dominant and a dense undergrowth of large evergreen shrubs and vines, such as *Cliftonia* and *Smilax*. *Pinus Elliottii* and *P. serotina*, though sometimes seen together, were usually separated. Just what causes the difference in the vegetation of these two kinds of depressions is not clear, but it seems probable that the sand is deeper and the water level more constant in the bays than in the ponds; and my recent studies of Florida

peat problems have shown that the amount of seasonal fluctuation of water is of fundamental importance to aquatic vegetation, thus explaining several peculiarities of distribution which could not be satisfactorily explained in any other way.

The following notes will throw some light on the inland, coastward, northern or southern limits of certain species observed in the ten hours it took to go from Blythewood to Jacksonville.

NYSSA OGECHE Marsh. Occasional from the Altamaha River to the St. Mary's, including the swamps of both rivers. This species has long been credited to South Carolina, perhaps because it was once described by Walter (as *N. capitata*). But Walter's Flora Caroliniana contains the names of a considerable number of plants that probably do not grow within many miles of his home (which was near the center of the coastal plain of South Carolina), and a few that have not even been seen in South Carolina at all, in modern times at least; and it is reasonable to assume that he had some specimens from the two adjoining states in addition to those from his own.*

The Michauxs, father and son, and Elliott, all placed the northeastern limit of *Nyssa Ogeche* at or near the Ogeechee River in Georgia; and I do not remember seeing it even as far northeast as that, although I have crossed that river on every railroad bridge and a few wagon bridges, making over a dozen different places in all. Herbarium specimens distributed by the late Dr. J. H. Mellichamp of Bluffton, S. C., would appear to be from a tree transplanted from the Ogeechee River swamps, judging from a brief note in Garden and Forest (7: 500) for Dec. 12, 1894.

*Among the species mentioned by Walter, which do not seem to have been seen in his neighborhood recently, if at all, the following occur to me:

Marshallia trinervia, *Mesadenia sulcata* (see Torrey 5: 183), *Aster carolinianus*, *Asclepiodora viridis* (see Ell., Sk. 1: 327. 1817), *Frasera carolinensis*, *Sabbatia decandra* (see Bull. Torrey Club 37: 595), *Cholisma ferruginea*, *Leucothoe Catesbaei*, *Zizia cordata*, *Ilex myrtifolia*, *Robinia hispida*, *Baptisia villosa* (see Coker, Torrey 11: 10), *Crataegus aestivalis*, *Malapoenna geniculata*, *Benzoin melissaefolium*, *Magnolia Fraseri*, *Nymphaea sagittifolia* (see Bull. Torrey Club 37: 598), *Trautvetteria carolinensis*, *Ponthieva racemosa*, *Cypripedium Reginae*, *Iris hexagona*, *Canna flaccida* (see Bull. Torrey Club 32: 156), *Smilax auriculata*, *Sabal Palmetto*, *Pinus glabra*, and a considerable number of strictly maritime plants. (The names used in this paragraph are the modern ones, which are different in most cases from those used by Walter. The specific names are the same as his in all but two or three cases, however.)

In another direction I have not seen this curious little tree even as far southeast as Duval County, Florida, but Mr. W. M. Canby, if there is no error about his label, collected specimens of it in March, 1869, near Hibernia in Clay County, about 20 miles south of Jacksonville.

NYSSA UNIFLORA Wang. Occasional from the Carolina side of the Savannah River swamp to about five miles northeast of Walthourville. In former years I have seen it on the Altamaha River down to within about twenty miles of the coast, but it is not known in eastern Florida at all, or anywhere near Okefinokee Swamp. It seems to grow only in swamps where the water fluctuates not less than three nor more than ten feet during the year.

ILEX MYRTIFOLIA Walt. First noticed just north of Barton, in the lower edge of Barnwell County, South Carolina. Frequent in cypress ponds the rest of the way to Jacksonville, except in the coast region between Hardeeville and Walthourville. Some of our manuals credit this to North Carolina or even to Virginia, but I have never seen it any farther north than the point just mentioned, or anywhere outside of the range of *Pinus Elliottii*.

CLIFTONIA MONOPHYLLA (Lam.) Sarg. Abundant nearly all the way through Wayne County, Georgia, between Doctortown and Nahunta, a distance of about 30 miles; but not seen elsewhere on this trip. It seems to reach its northeastern limit between the Ogeechee and Savannah rivers, where it has been observed in three different centuries, by Bartram,* Michaux,† Nuttall,‡ and myself.

* Travels, 31. 1791.

† In the Journal of André Michaux, edited by C. S. Sargent, and published in 1889, there is the following interesting entry under date of May 19, 1787, when father and son were journeying together from Savannah to Augusta, mostly following the high ground between the Savannah and Ogeechee rivers:

"Un peu avant d'arriver à Beaver Dam [Creek] je recueillis sur la route, étant alors à 60 milles de distance d'Augusta, un Rumex arbriss. que je nommeray Lapathum occidentale, grand arbriss[eau], de 25 à 30 pieds de haut. Il se trouve aussi près de la rivière Altamaha, d'où mon fils me l'avoit apporté les jours précédents."

Prof. Sargent in a footnote here refers this "*Rumex* bush" doubtfully to *Brunnichia cirrhosa*; but the occurrence of *Brunnichia* in such a place (which was probably a few miles east of where Sylvania now is) is highly improbable, and besides, Michaux would hardly have described *Brunnichia* as a shrub. Furthermore, it does not bloom until midsummer, and in May there would have been little to suggest its affinity to *Rumex*. *Cliftonia*, however, has green fruit on it in May, and this re-

I have never found it within about 25 miles of the coast in Georgia; and like *Nyssa uniflora*, but doubtless for different reasons, it is not known to occur in eastern Florida.

CERATIOLEA ERICOIDES Michx. Observed three times on the highest and driest sandhills of Lexington County, South Carolina, about halfway between Columbia and Perry, which must be near its northern limit. *Kuhnistera pinnata* and *Lupinus diffusus* were seen with or near it, and nowhere else on that day.

BAPTISIA PERFOLIATA (L.) R. Br. This most striking (and one of the least widely distributed) species of *Baptisia* was seen only once on the day indicated, namely, a little north of Kline, in Barnwell County, South Carolina.

MAGNOLIA GRANDIFLORA L. First noticed in the upper edge of Hampton County, South Carolina. This beautiful tree is evidently much rarer in South Carolina than in some of the states farther west.

MYRICA CERIFERA L. Frequent from a point a little north of Barnwell, S. C., southward.

TILLANDSIA USNEOIDES L. First seen in the swamp of the South Fork of the Edisto River on the boundary between Orangeburg and Barnwell counties, South Carolina, where it is very abundant. This characteristic coastal plain epiphyte seems to reach the fall-line only along or near the muddy rivers,* and the Edisto is not of that class.†

ORONTIUM AQUATICUM L. Seen on this trip only in the estuarine marshes of the Ogeechee River, Georgia. Throughout its

sembles that of *Rumex* (section *Lapathum*) about as much as anything else. It is also common near the Altamaha River. Michaux's first-named locality must be very near where Bartram saw the same plant in the preceding decade.

The type locality of this species (*Ptelea monophylla* Lam.) was given as "Carolina," but that should not be taken too literally. Strange to say, it does not seem to have been mentioned, under any name, in Michaux's *Flora Boreali-Americana* or in his son's *North American Sylva* (it was afterward added to the latter by Nuttall, though); but this is true of several other plants mentioned in Michaux's journal, and probably indicates that their specimens in such cases, if they preserved any, got lost.

‡ N. Am. Sylva 2: 93. 1846.

* In this connection see Nuttall's remarks on the distribution of this species, in his *Genera* 1: 208, 209. 1818.

† See Bull. Torrey Club 34: 257. 1907.

range its favorite habitat seems to be stagnant or gently flowing non-calcareous water whose level does not vary more than a foot or so during the year.

SERENOA SERRULATA (Michx.) B. & H. First seen in Chatham County, Georgia, about six miles beyond where the Savannah River was crossed. It is reported from South Carolina, but in that state is perhaps confined to the southernmost county, Beaufort, in which I have never been.

SABAL PALMETTO (Walt.) R. & S. Seen only in the marshes of the Little Ogeechee River, Chatham County, Georgia. The rest of the way I was evidently too far inland for it.

SABAL GLABRA (Mill.) Sarg. First noticed in the Savannah River bottoms near Hardeeville, S. C.

CLADIUM EFFUSUM (Sw.) Torr. Seen only between Callahan and Jacksonville, Florida, in a few shallow swamps where limestone is assumed to be near the surface. In other states it seems to be almost confined to estuarine marshes near the coast, but in Florida it grows in nearly every county.

TAXODIUM. Both species were first encountered this time in Barnwell County, South Carolina, *T. imbricarium* in the northern edge of the county, and *T. distichum* just south of the county seat. Both extend far down into Florida.*

CHAMAECYPARIS THYOIDES (L.) B.S.P. Noticed twice along creeks in the sandhills of Lexington County, South Carolina, about ten miles southwest of Columbia.

JUNIPERUS. Whether the *Juniperus* which is indigenous near the southern coast is *J. virginiana* or *J. barbadensis*, or both, I have never been able to determine. Trees of this genus were seen in the Little Ogeechee marshes, Chatham County, Georgia, and in two supposedly calcareous swamps between Callahan and Jacksonville, Florida. (I afterwards collected specimens at the locality nearest Jacksonville.) It is decidedly rare in eastern Florida.

PINUS GLABRA Walt. Seen first in the upper edge of Hampton County, South Carolina, and last just north of the Ogeechee River in Georgia. Farther south the boundary of its range seems to diverge considerably from the coast.

*See Ann. Rep. Fla. Geol. Surv. 3: 352, 353. 1911.

PINUS ELLIOTTII Engelm. First seen about a mile north of Allendale, S. C., which is pretty close to the place where I last saw it on my way northward in 1909, which may safely be taken as its northern limit.*

UNIVERSITY, ALA.

*See Bull. Torrey Club 37: 603. 1911.